



Modeling and forecasting of the Black Sea circulation in the some part of the Georgian coastal zone

A. Kordzadze, **D. Demetrashvili**

Institute of Geophysics, Tbilisi, Georgia

demetr_48@yahoo.com/avtokor@ig.acnet.ge/Phone:(99532)33-38-14

A 3-D baroclinic prognostic model of the Black Sea dynamics of the Institute of Geophysics (Tbilisi, Georgia) is used for modeling and forecasting of hydrophysical processes in the Georgian water area of the Black Sea. The term of forecasting was accepted: from 7 June 2003 00h to 15 June 2003 00h. The model equation system is solved by the two-cycle splitting method in the domain, which is limited with liquid boundary along 41⁰E and Georgian coastline. The calculated grid with 1 km horizontal step and 27 levels with non-uniform steps on a vertical was used. This regional model was nested in a basin -scale (5 km resolution) model (BSM) of Marine Hydrophysical Institute (MHI) of Sevastopol (Ukraine).

All input data needed for forecasting of hydrophysical fields with high resolution for the Georgian nearshore zone were obtained from MHI. These input data represented the 3D initial fields at 7 June 2003 00h and one – hour –step data of predicted hydrophysical fields by BSM and climatological atmosphere forcing data for the chosen water area. During realization of the nested grid model the received 3-D initial fields and atmosphere forcing data were translated from a grid of BSM to a grid of nested-grid model by the use of interpolation; also from 3-D predicted fields boundary conditions on liquid boundary in each hour were defined. Comparison of results obtained from BSM and high resolution nested-grid regional model shows that unlike BSM the regional model describes well coastal vortexes of small sizes.

This test numerical experiment in the framework of the International Project ARENA was a preparatory stage before the pilot experiment on operational functioning of the Black Sea nowcasting/forecasting system, which has been carried out for the first time in the Black Sea region in July 2005.